REMARKS/ARGUMENTS

Claims 1, 5, 7-10 and 29 are pending in the present application. Claims 1 and 29 were each amended to more clearly recite the present invention and/or to correct minor informalities. No new matter was added. Claims 2-4, 6 and 30-32 were cancelled due to redundancy with the limitations added to independent claims 1 and 29, and claims 13-28 and 33-43 were cancelled from this application for potential submission in a divisional application to be filed.

Withdrawal of all objections and rejections is respectfully requested for the reasons set forth below.

Elections/Restrictions

Applicant notes that claims 13-28 and 33-43 were withdrawn from consideration pursuant to 37 CFR 1.142(b), such that these claims were cancelled in the present Amendment. Applicant respectfully reserves the right to present cancelled claims 13-28 and 33-43 in one or more divisional patent applications.

Rejection of Claims 1-12 under 35 USC § 102

In paragraph 4 of the Office Action, claims 1-12 were each rejected under 35 USC § 102(b) as being anticipated by US Patent 1,013,869 of Edison ("Edison"). Applicant respectfully traverses this rejection, and requests the withdrawal thereof for the following reasons.

Edison teaches a bearing for a high speed shaft (8) that includes a bearing formed of lower and upper pillow blocks (1), (2) provided with a sleeve (3) disposed about the shaft (8) (lines 29-35). The bearing has vertical recesses (5), (6) that define a slot for a ring (7), the ring (7) being frictionally engaged with the shaft (8) (see lines 35-41). A pair of channels (15) extend from the upper block recess (6) and through the sleeve (3) to the bore of the bearing (see lines 44-49). Further, near opposing ends of the lining/sleeve (3) are circular channels (16), which communicate with vertical channels (17) through the lower block (2) and with an oil reservoir (18) in the lower bearing block (1) (lines 49-53). With this structure, oil is drawn by the ring (7) and is "thrown off by centrifugal action" into the upper recess (6) so as to flow into the channels (15) and through the sleeve (3) to the bearing bore and onto the upper surface of the shaft (8), thereafter returning to the reservoir through the channels (17) (see lines 57-71).

The present invention as recited in independent claim 1 as amended is directed to a lubricant circulation system for a rotatable shaft (12) that includes a bearing (28; 28') having an inner surface (not indicated) and being disposed on the shaft (12) so as to define a clearance (29) between the shaft outer surface (not indicated) and the bearing inner surface (see Par. [0010]; Figs. 1-4). An oil ring (32) is configured to draw lubricant from a lubricant source (38; 50; 80; 82) and to deliver the lubricant to the clearance (29), and an oil ring slot (30) is defined in the bearing (28, 28') for accommodating the ring (32), a portion of the oil ring (32) extending through the slot (30) in contact with the shaft (12) (Pars. [0011]-[0012]; Figs. 1-4). A conduit (40; 62; 86; 88) is connected to the clearance (29) for receiving lubricant from the clearance (29) and delivering the lubricant back to the lubricant source (38; 50; 80; 82) (see Pars. [0013]; original claim 2 and Figs. 1, 2 and 4-6), the conduit (40; 62; 86; 88) having an outlet (not indicated) disposeable within the lubricant source (38; 50; 80; 82) such that the conduit (40; 62; 86; 88) delivers the lubricant from the clearance (29) to a lower portion of the lubricant source (see Par. [0015]; original claim 6; Figs. 1, 2 and 4-6). Further, a radially-extending port (34) is formed through the bearing (28; 28') and connects the clearance (29) and the conduit (40; 62; 86; 88) (Par. [0011]; original claim 4; Figs. 1, 3 and 4).

Furthermore, a feed slot (42) is formed in the bearing (28; 28') for collecting a portion of the lubricant drawn from the lubricant source (38; 50; 80; 82) (Par. [0013]; original claim 2). The feed slot (42) extends axially and radially inwardly from the bearing inner surface (not indicated) so as to be fluidly connected with an axial section of the clearance (29) (see Figs. 2-4). Also, the slot (42) extends generally extending axially from the oil ring slot (32) and being angularly spaced from the pressure lube feed port (34) (Par. [0013]; original claim 3, Fig. 4). As such, a portion of a circulation path (P1) extends from the oil ring (32) axially through the feed slot (42), circumferentially through the clearance (29), and through the port (34) to the conduit (40; 62; 86; 88) (Par. [0014]; Fig. 4).

With the above structure, lubricant in the ring slot (30) flows axially into the feed slot (42) and is collected within the axial slot (42) until reaching a volume such that the lubricant overflows the slot, and then passes through the clearance (29) until reaching the feed port (34) (Par. [0015]). As such, the feed slot (42) provides the benefit of more completely distributing the lubricant along the axis of the shaft (12).

Edison does not anticipate the present invention for at least the following, among other, reasons. First, Edison fails to teach or even suggest a lubricant circulation system that includes "a conduit connected to...[a] clearance [between a shaft and bearing] for receiving lubricant from the clearance and delivering the lubricant back to...[a] lubricant source, the conduit having an outlet disposeable within the lubricant source such that the conduit delivers the lubricant from the clearance to a lower portion of the lubricant source" as recited in claim 1 as amended. By having such a conduit (40; 62; 86; 88), the problem of stagnation of lubricant within the lower portion of the lubricant source (38; 50; 80; 82) is avoided (see Par. [0017]).

Edison only teaches a lower bearing block (2) that has channels (16) about a shaft (8) and vertical channels (17) through a bearing block (1) that enable oil in the channels (16) to flow or "drop" onto a volume of oil in a reservoir (18) (see arrows in Fig. 1). The channels (17) each have an outlet spaced above the upper surface of the oil in the reservoir (18) and clearly do not have outlet disposed or disposeable within a lubricant source, such that the channels (17) of Edison can not promote circulation of oil within the reservoir (18). Thus, Edison clearly does not teach or even suggest a conduit having an outlet disposed or disposeable within a source of lubricant.

Second, the present invention is also not anticipated by Edison for the reason that the cited reference fails to teach or even suggest a bearing for an oil ring lubricant circulation system that includes "a feed slot formed in the bearing for collecting a portion of ... lubricant drawn from ... [a] lubricant source, the feed slot extending axially and radially inwardly from the bearing inner surface so as to be fluidly connected with an axial section of the clearance" as recited in independent claim 1 as amended. As discussed above, such a lubricant feed slot (42) enables lubricant to collect within the axial slot (42) until reaching a volume such that the lubricant overflows the slot (42), and then passes through an axial portion of the clearance (29) to more completely distribute the lubricant along the axis of the shaft (12) (see Fig. 4).

Edison only teaches angled channels (15) that each extend from the upper regions of a vertical recess (6) to a generally circular opening through a sleeve (3), such that oil flows onto a shaft (8) at a specific axial location and is not distributed axially by the channels (15) themselves. The channels (15) do not extend axially and radially inwardly from an inner surface of the upper block (2) or of the sleeve (3), but rather extends within the body of the block (2) and through the sleeve (3) to terminate at an outlet port. Thus, Edison clearly does not teach or even

suggest a lubricant feed slot that extends axially and radially inwardly from a bearing inner surface so as to be fluidly connected with an axial section of a clearance about a shaft.

In view of the above, it is clear that Edison does not teach or disclose all the recited claim limitations of independent claim 1 as amended. As such, independent claim 1 is not anticipated by Edison, such that the rejection of amended claim 1 under 35 U.S.C. § 102(b) should be withdrawn. Further, as claims 5 and 7-10 each depend from claim 1, and independent claim 1 is not anticipated by Edison, the rejection of claims 5 and 7-10 under 35 U.S.C. § 102(b) should also be withdrawn.

Rejection of Claims 29-32 under 35 USC § 102

In paragraph 5 of the Office Action, claims 29-32 were each rejected under 35 USC § 102(b) as being anticipated by Edison. Applicant respectfully traverses this rejection, and requests the withdrawal thereof for the following reasons.

For the same reasons discussed above concerning independent claim 1, Edison fails to teach or even suggest, among other things, a method of circulating oil through a lubricant system that includes providing a bearing having an inner surface and "a feed slot extending axially and radially inwardly from the bearing inner surface" and "a conduit connected with ... [a] clearance [between a bearing and shaft] .... having an outlet disposeable within the lubricant source" as recited in independent claim 29 as amended.

Further, Edison does not disclose or suggest a lubricant circulation method that includes the step of "circulating lubricant through the conduit and back into the lubricant source to complete circulation of the lubricant through a closed-loop circulation path" as recited in claim 29. Rather, Edison teaches circulating oil through an "open loop" path whereby oil drips or drains from channels (17) to fall onto a volume of oil in a reservoir (18).

For these reasons, it is clear that Edison does not teach or disclose all the recited claim limitations of independent claim 29 as amended, such that independent claim 29 is not anticipated by Edison. As such, the rejection of amended claim 29 under 35 U.S.C. § 102(b) should now be withdrawn.

Conclusion

Therefore, it is respectfully submitted that all claims pending in the present Application are in condition for allowance. Reconsideration and allowance of pending claims is therefore respectfully requested.

If the Examiner believes an interview, either telephonic or in person, will advance the prosecution of this matter, it is respectfully requested that the Examiner contact the undersigned at the Examiner's convenience.

Respectfully submitted,

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Docket No. 027298-9088
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